
CURRICULUM VITAE

NAME	POSITION TITLE
Barillas-Mury, Carolina V.	Senior Investigator

Place of Birth: Guatemala City, Guatemala, Central America
Citizenship: Guatemalan, American and Swiss

EDUCATION

INSTITUTION AND LOCATION	DEGREE	YEAR(s)	FIELD OF STUDY
Universidad del Valle de Guatemala	B.S.	1981	Biology
Universidad Francisco Marroquín de Guatemala	M.D.	1985	Medicine
University of Arizona	Ph.D.	1992	Biochemistry

Professional Experience

2010-present	Senior Investigator, National Institutes of Health, Laboratory of Malaria and Vector Research, Head of the Mosquito Immunity and Vector Competence Section
2003-2010	Investigator, National Institutes of Health, Laboratory of Malaria and Vector Research, Head of the Mosquito Immunity and Vector Competence Unit
1998-2003	Assistant Professor, Department of Microbiology, Immunology and Pathology, Colorado State University
1993-1998	Post Doctoral Fellow, European Molecular Biology Laboratory, Heidelberg, Germany and Harvard University, Dr. Fotis Kafatos laboratory

Honors, Fellowships

- 2013 Sanofi/Pasteur Award for outstanding contributions to understanding the mosquito immune responses that affect malaria transmission.
- 2013 NIAID Outstanding Mentor Award for an exceptional positive impact on the professional development of post-doctoral fellows.
- 2010 Bailey K. Ashford Medal, Awarded by the American Society of Tropical Medicine and Hygiene for distinguished work in tropical medicine.
- 2010 NIH/NIAID Individual Merit Award for outstanding accomplishments.
- Swiss National Science Foundation, Training and Mobility of Researchers Fellowship, 1996-1998
- European Molecular Biology Organization, Long Term Fellowship, 1995-1996
- Alexander von Humboldt Fellowship, 1994-1995.
- Graduate Student Trainee Fellowship, Center for Insect Science, 1989-1991.
- Best Thesis of the year. Faculty of Medicine. Universidad Francisco Marroquín de Guatemala, 1986.

Fields of Interest

1. Interactions between *Plasmodium* parasites, the gut microbiota and mosquito midgut epithelial cells.
2. Immune pathways that mediate antiplasmodial responses.
3. Hemocyte differentiation and immune memory in mosquitoes.
4. *Plasmodium* evasion of the mosquito immune system.

Organization Of International Meetings and Courses

- Co-organizer of the Keystone Symposium on “Malaria”, New Orleans, Louisiana, January 2013.
 - Co-organizer and Head of the Vector Biology Module. Biology of Parasitism: Modern Approaches. Summer Course, Woods Hole, MA. (2010 and 2011)
 - Co-organizer of the Arthropod Immunity Workshop and the Parasite Immunity Section. 10th International Congress of the International Society for Developmental and Comparative Immunology, Charleston, South Carolina, July 2006
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- Co-organizer of the Keystone Symposium on “Genetic Manipulation of Insect Vectors”, Taos, New Mexico, February 2004.
 - Co-organizer of the International Course on the Biology of Disease Vectors (BDV), Colorado State University, Fort Collins, Colorado, June 2000.

Participation in Genome Annotation Consortia

- 2006 Comparative genome and proteome analysis of *Aedes aegypti*, *Anopheles gambiae* and *Drosophila melanogaster* immunity-related genes.
- 2002 Comparative genome and proteome analysis of *Anopheles gambiae* and *Drosophila melanogaster*.
- 2002 Immunity-related genes and gene families in *Anopheles gambiae*.

Editorial Activities

- Honorary Editorial Advisory Board, *Journal of Invertebrate Immunity*, since 2012
- Associate Editor, *PloS Pathogens*, since 2012
- Referee, *Cell*, since 2010
- Referee, *Cell Host & Microbe*, since 2010
- Referee, *BMC genomics*, since 2010
- Referee, *PLoS One*, since 2008
- Referee, *PLoS Neglected Tropical Diseases*, since 2008
- Referee, *Biochimica et Biophysica Acta*, since 2006
- Referee, *Science*, since 2005
- Referee, *PLoS Pathogens*, since 2005
- Referee, *Cellular Microbiology*, since 2005
- Referee, *Free Radical Biology and Medicine*, since 2005
- Referee, *Journal of Parasitology*, since 2004
- Referee, *European Journal of Biochemistry*, since 2004
- Referee, *Trends in Parasitology*, since 2001
- Referee, *Gene*, since 2000
- Referee, *Proceedings of the National Academy of Sciences, U.S.A.*, since 2000
- Referee, *Insect Biochemistry and Molecular Biology*, since 1999
- Referee, *Journal of Biological Chemistry*, since 1999
- Referee, *Insect Molecular Biology*, since 1998.

Public Media and Interviews (with links)

National Public Radio (NPR), Science Friday, host: Ira Flatow.

[The Cure For Malaria Could Be In A Mosquito's Gut, September 10, 2010.](#)

Profiles in Tropical Medicine and Hygiene and Global Health

[Profile Carolina Barillas-Mury, MD, PhD](#)

Science NOW by Dolly J. Krishnaswamy

[How mosquitoes Fight Malaria. September 9, 2010.](#)

Correio Braziliense, Brasília, Brasil by Thais de Luna

[Estudo contra a malária busca fortalecer o sistema imunológico do mosquito. January 26, 2012](#)

Guest Speaker

Has given 90 lectures or oral presentations as a guest speaker in international scientific conferences or as a seminar speaker in academic institutions in the US, Latin America and Europe.

List of Selected Publications

1. Molina-Cruz A., Garver L.S., Alabaster A., Bangiolo L., Haile A., Winikor J., Ortega C., vanSchaijk B.C.L., Sauerwein R. W., Taylor-Salmon E. and **Barillas-Mury C.** (2013) The Human Malaria Parasite *Pfs47* Gene Mediates Evasion of the Mosquito Immune System. *Science* **340**(6135):984-87.
 2. Oliveira G.A., Lieberman J., & **Barillas-Mury C.** (2012) Epithelial Nitration by a Peroxidase/NOX5 System Mediates Mosquito Antiplasmodial Immunity. *Science* **335**: 856-9
 3. Molina-Cruz A., Dejong R.J., Ortega C., Haile A., Abban E., Rodrigues J., Jaramillo-Gutierrez G., **Barillas-Mury C.** (2012) Some strains of *Plasmodium falciparum*, a human malaria parasite, evade the complement-like system of *Anopheles gambiae* mosquitoes. *Proc. Natl. Acad. Sci. U S A.* **109**(28):E1957-62.
 4. Rodrigues J., Brayner F.A., Alves L.C., Dixit R. and **Barillas-Mury, C.** (2010) Hemocyte Differentiation Mediates Innate Immune Memory in *Anopheles gambiae* Mosquitoes. *Science* **329**: 1353-1355.
 5. Kumar S., Molina-Cruz A., Gupta L., Rodrigues J. and **Barillas-Mury, C.** (2010) A peroxidase/dual oxidase system modulates midgut epithelial immunity in *Anopheles gambiae*. *Science* **327**:1644-8.
 6. Gupta L., Molina-Cruz A., Kumar S., Rodrigues J., Dixit R., Zamora R.E. and **Barillas-Mury, C.** (2009) The STAT pathway mediates late phase immunity against *Plasmodium* in the mosquito *An. gambiae*. *Cell Host & Microbe*. **5**(5):498-507.
 7. Kumar S., Christophides G.K., Cantera R., Charles B., Han Y.H., Meister S., Dimopoulos G., Kafatos F.C. and **Barillas-Mury C.** (2003) The role of Reactive Oxygen Species (ROS) on *Plasmodium* melanotic encapsulation in *Anopheles gambiae*. *Proc. Natl Acad. Sci. U S A* **100**(24): 14139-14144.
 8. Han, Y.S., Thompson, J., Kafatos, F.C., **Barillas-Mury, C.** (2000) Molecular interactions between *Anopheles stephensi* midgut cells and *Plasmodium berghei*: the time bomb theory of ookinete invasion of mosquitoes. *EMBO J.* **19**(22):6030-6040.
 9. Waterhouse, R.M., Xi, ZY., Kriventseva, E., Meister S., Alvarez K.S., Bartholomay, L.C., **Barillas-Mury, C. et al.**, (2007) Evolutionary dynamics of immune-related genes and pathways in disease-vector mosquitoes. *Science* **316**(5832):1738-43.
 10. Zdobnov EM, von Mering C, Letunic I, Torrents D, Suyama M, Copley RR, Christophides GK, Thomasova D, Holt RA, Subramanian GM, Mueller HM, Dimopoulos G, Law JH, Wells MA, Birney E, Charlab R, Halpern AL, Kokoza E, Kraft CL, Lai Z, Lewis S, Louis C, **Barillas-Mury C, et al.**, (2002) Comparative genome and proteome analysis of *Anopheles gambiae* and *Drosophila melanogaster*. *Science*, **298**(5591):149-59
 11. Christophides GK, Zdobnov E, **Barillas-Mury C, et al.**, (2002) Immunity-related genes and gene families in *Anopheles gambiae*. *Science*. **298**(5591):159-65.
 12. Kumar S, Gupta L, Han YS, **Barillas-Mury C.** (2004) Inducible peroxidases mediate nitration of *Anopheles* midgut cells undergoing apoptosis in response to *Plasmodium* invasion. *J Biol Chem*. **279**:53475-82.
 13. Molina-Cruz A, Dejong RJ, Charles B, Gupta L, Kumar S, Jaramillo-Gutierrez G, **Barillas-Mury C.** (2008) Reactive oxygen species modulate *Anopheles gambiae* immunity against bacteria and *Plasmodium*. *J Biol Chem*. **283**(6):3217-23.
 14. Gupta L., Kumar S., Han Y.S., Pimenta P.F. and **Barillas-Mury C.** (2005) Midgut epithelial responses in different mosquito-*Plasmodium* combinations: the Actin Cone Zipper Model of epithelial repair in *Aedes Aegypti*. *Proc. Natl Acad. Sci. U S A* **102**(11):4010-5.
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